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# AZERBAIJAN COMPETITIVENESS AND TRADE (ACT) PROJECT

*Final Draft National Residue Control and Monitoring  
Plan*

**March, 2012**

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# Azerbaijan Competitiveness and Trade (ACT) Project

## *Final Draft National Residue Control and Monitoring Plan*

March 2012

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**DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the U.S. Agency for International Development or the United States Government.

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## Introductory Note

This National Residue Control and Monitoring Plan was drafted by Azerbaijan Competitiveness and Trade Project in response to cases of non-compliance of Azerbaijani foodstuffs with food safety standards of export markets, and examples of significant differences between food safety standards accepted in Azerbaijan and in countries of actual or potential export, first of all EU. This hamper diversification of export markets for the country and creates significant financial risks for local producers who have export potential.

The main goal of this Plan is to facilitate better compliance of selected foodstuffs produced in the country with requirements of destination markets, as well as to increase safety of locally produced and distributed foodstuffs.

There are several official control agencies in Azerbaijan involved in control of food safety, and this regulatory sector is characterized by redundancies and lack of cooperation between authorities. This Plan is also targeted at facilitating better cooperation between the agencies and increasing efficiency of official control.

For the development of this Plan, a European Union model was used. Article 41 of Regulation (EC) No 882/2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules<sup>1</sup>, requires from member states to develop multi-annual national control plans. Same requirement extends to third countries who sell foodstuffs to EU. While the current EU practice in relation to national control plans from third countries is to make focus on products of animal origin, it is up to third countries to apply the national plan model to other commodities an sectors, if determined by risks.

According to Regulation 882/2004 and respective guidelines, national control plans should have an established structure that includes the following elements:

- Information on the structure and functions of competent authority(s) (central public body(s)) responsible for drawing up the residues control plan and co-ordinating the activities of all subordinate departments playing a role in execution of the plan.
- A description of the legislative framework covering, for example, rules on the use of pesticides, authorisation (and/or prohibition) procedures etc.
- Laws and regulations concerning legal provisions on official surveillance and control of residues in foodstuffs.

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<sup>1</sup> Regulation (EC) No 882/2004 of the European Parliament and of the Council of 29 April 2004 on official controls performed to ensure the verification of compliance with feed and food law, animal health and animal welfare rules

- Contaminants to be included into the plan.
- A list of approved laboratories for residues controls and the accreditation status of these laboratories, information on participation in proficiency testing schemes for residues, pesticides and contaminants;.
- List of domestic and foreign laboratories if relevant.
- Rules covering the collection of official samples;
- Description of personnel involved in official sampling; at which level (farm/establishment etc.).
- Analytical methods to be used
- Rules to be followed for collecting, packing, identifying, transporting, and storage of the samples.
- Details on measures to be taken in the event of an infringement, and description of procedures set in place for non-compliant results.

This Plan follows the established format and addresses all elements where possible, As this is a draft document, some specific details are missing as it is critical that they come from national authorities.

This Plan needs to be further developed in close cooperation with relevant Government authorities. It is suggested that it is approved by the Order of the Cabinet of Ministers

# National Residue Control and Monitoring Plan

## **1. List of Acronyms**

NRCMP – National Residue Control and Monitoring Plan

EU – European Union

WTO – World Trade Organization

RASFF – Rapid Alert System for Food and Feed

SPS – Sanitary and Phytosanitary Measures

GOST – State Standard

MRL – Maximum Residue Limit

## **2. Introduction**

The National Residue Control and Monitoring Plan (NRCMP) was prepared in Azerbaijan Republic for the period from 1<sup>st</sup> January 2013 to 31<sup>st</sup> December, 2013. A period of 1 year was selected as a pilot period for the first attempt of Azerbaijan to implement an inter-agency coordinated official control activity.

During the lifetime of the plan, delivery of the objectives will be monitored and the plan kept under review and updated as appropriate. Annual progress reports on implementation will be prepared.

For the purposes of this NRCMP, control means any form of control that the competent authorities perform for the verification of compliance with relevant laws and regulations, and is applied to foodstuffs intended for export, with EU as an intended market. Monitoring means conducting a planned sequence of observations or measurements with a view to obtaining an overview of the state of compliance with relevant laws and regulations and is applied to foodstuffs intended both for export and domestic consumption. Monitoring implies a statistically-based, unbiased, random sampling, processing and analysis of samples to provide profile information on the occurrence and/or levels of chemical residues in pre-defined, normal sample populations. In general, no direct enforcement action is taken on the basis of monitoring alone. Monitoring activities are particularly useful for discerning residue trends and identifying potential areas where directed sampling might be indicated. In this type of program, trace-back activities to identify the source of the residue should be undertaken.

Residue monitoring activities provide verification that the numerous controls implemented by a wide range of public authorities, and the producers themselves, are effective in controlling the use of substances such as pesticides, heavy metals, etc. that have the potential to cause harm to the consumer.

This NRCMP puts emphasis on the monitoring, with its findings and results to be used for a more targeted official control.

It should be noted that the operation of residue monitoring plans and control systems in isolation will not control potential hazards or meet the requirements to gain access to export markets: they must form part of an integrated system of control measures, implemented at a national level by numerous governmental authorities, together with private sector stakeholders, that is designed to ensure food safety throughout the entire supply chain.

This NRCMP is implemented by relevant official food control bodies and is coordinated by the National Codex Alimentarius Committee of Azerbaijan Republic.

### ***3. Objectives of the NRCMP***

The primary objectives of the NRCMP are to ensure that food is safe and wholesome and to protect consumers' interests; this is achieved through:

- Facilitating gradual increase of safety of foodstuffs produced in the country for local consumption
- Ensuring fulfillment of export market requirements as to food safety and quality
- Identifying and decreasing unlawful application of forbidden or unauthorized substances, or substances with restricted use
- The co-ordination of official controls implemented by relevant official food control bodies, to ensure:
  - effective and efficient implementation at national, regional and local level
  - official controls are carried out regularly, on a risk basis and with appropriate frequency
  - impartiality, quality and consistency of official controls
  - activities are carried out to a high level of transparency
  - efficient use of financial, human and technical resources

The approach suggested by this NRCMP is to foster a culture of compliance through the use of risk based controls which protect public, animal and plant health, and consumer interests



without imposing unnecessary burdens on the food and feed business operators that are subject to these controls.

#### ***4. Legal basis of the NRCMP***

This NRCMP was developed under the National Food Security Program, approved by the Decree of the President of Azerbaijan Republic and The National Food Safety and Control Strategy, approved by the Order of the Cabinet of Ministers ... TBD.

This NRCMP is approved by the Order of the Cabinet of Ministers of Azerbaijan Republic #...TBD

This NRCMP fully uses recommended documents developed by Codex Alimentarius Commission, including the following:

- General Guidelines On Sampling. CAC/GL 50-2004
- Codex Sampling Plans For Prepackaged Foods. AQL 6.5
- Recommended Methods of Sampling for the Determination of Pesticide Residues for Compliance with MRLS. CAC/GL 33-1999
- Recommended Methods Of Analysis And Sampling. CODEX STAN 234-1999

Relevant guidelines of the European Union are also used.

#### ***5. Foodstuffs covered by the NRCMP***

This NRCMP is focused on selected foodstuffs. The foodstuffs have been selected based on several criteria, including the following:

- High export potential or actual export, including to markets with stringent requirements on food safety
- Big volumes of production in the country, and country specialization in certain crops, and nativity of certain crops to Azerbaijan
- Significant share in diet of local consumers

Based on these criteria, the following commodities are included into the NRCMP:

1. Apples
2. Pomegranate
3. Tomatoes
4. Cucumbers

5. Hazelnuts
6. Apple Juice
7. Pomegranate Juice

In future the NRCMP can be extended to additional foodstuffs, based on this and other criteria, as deemed appropriate based on the risks and priorities.

## ***6. Information on the structure of the competent authorities***

Safety and quality of the foodstuffs covered by the NRCMP is controlled in Azerbaijan by several authorities. These authorities are listed below, together with roles included into their mandates as relates to the commodities under consideration:

### **1. State Phytosanitary Service of the Ministry of Agriculture.**

- Registration of plant protection products
- Plant quarantine control
- Toxicological control (testing) of plant products
- Issue certificates of quarantine expertise
- Issue phytosanitary certificates for fresh fruits, vegetables and nuts intended for export.

### **2. State Service for Sanitary and Hygiene Surveillance of the Ministry of Health**

- Control of sanitary condition for food processing premises, and process hygiene
- Issue hygiene certificates for compliance with Sanitary Rules and Norms

### **3. State Agency of Certification, Standardization and Patents (AzStandard)**

- Conformity assessment with state standards (GOSTs)

### **4. State Office for Control of Consumer Market and Antimonopoly of the Ministry of Economic Development**

- Market surveillance
- Control of exported foodstuffs
- Issue quality certificates

### **5. State Customs Committee**

- Performing phytosanitary control at borders, including exported and imported foodstuffs

### **6. Ministry of Ecology and Natural Resources**

- Control of condition of nature waters and soils

All agencies have their central offices and regional centers. The regional centers are subordinate to central offices and do not act as independent entities. There are other agencies involved in official control of food in the country, like State Veterinary Service of Azerbaijan. While their role is significant in the overall food control, they are not related to the commodities under this NRCMP.

## ***7. Description of the legislative framework***

The health of population in Azerbaijan is guaranteed by the Constitution of Azerbaijan Republic. Food safety is regulated by several laws and a vast number of secondary regulations. The laws cover general issues related to manufacturing and distribution of foodstuffs, sanitation and epidemiological control, phytosanitary control, and veterinary control, and protection of consumer rights. This includes the following laws:

- The Law on Foodstuffs (# 759-IQ of November 18, 1999, with addendums and amendments under the laws #219-II QD of November 23, 2001, #389-II QD of December 3, 2002, and #538-II QD of December 5, 2003);
- The Law on Sanitary and Epidemiological Well-being (#372 of November 10, 1992)
- The Law on Veterinary Medicine, #825 of June 17, 1994;
- The Law on Phyto-Sanitary control, #102-IIIQ, of 12.05.2006;
- The Law on pesticides and agrochemical substances, #294-IQ, of 6.05. 1997, with amendments;

Secondary regulations related to the commodities covered by this NRCMP include the following:

- Regulations in various aspects of phytosanitary control (26 documents)
- Hygienic standards for pesticides & nitrates in environmental objects # GN 08/19-769-07 - this document establish a list of authorized pesticides and their maximum residue levels in certain foodstuffs;
- Hygienic requirements to safety and nutritional value of foodstuffs, SanPIN 2.3.2.1078-01 – this document establishes specific acceptable levels of microbiological and chemical contaminants in foodstuffs;
- State standards of Azerbaijan (GOSTs) – these vertical prescriptive documents establish quality parameters for specific food commodities.

In addition to the mentioned laws and regulations, the following documents are approved and serve as guidelines for further development of regulatory framework.

- State Program on the Reliable Provision of Population's with Food Products in the Azerbaijan Republic during the period 2008-2015, approved by the Presidential Decree #3004 of August 25, 2008.
- Action plan for harmonization of legislation of the Azerbaijan Republic under the agreement with the WTO, Order of the President #1583 of 2 August 1999
- Action plan for approximation of legislation with the EU in 2010-2012 (approved by the third meeting of the state commission on the integration of Azerbaijan Republic on 23 October 2009)
- The draft National Food Safety Strategy

## ***8. Contaminants and residue levels covered by the NRCMP***

Since all contaminants cannot be assessed at the same time based on resources available, a prioritization process based on a risk estimate was conducted to determine the compounds for inclusion in the NRCMP.

Contaminants covered by this NRCM Plan were selected based on risks. The risk criteria include the following:

- Severity of negative effects on human health
- Scientific data available in Azerbaijan and globally on occurrence of contaminants in foodstuffs
- Statistics and known facts of non-compliances in Azerbaijan and in the world
- High level of identification of exceeding levels of contaminants at the EU border and border notifications through RASFF (statistics of 10 years available through RASFF)
- Differences in normative acceptable levels of contaminants in Azerbaijan and EU

Based on these criteria, the following contaminants were selected as priorities for inclusion into the NRCMP:

- Pesticide residues
- Heavy metals
- Mycotoxins (aflatoxins and patulin)
- Food additives

Due to the nature of the commodities it stands to reason that each of the commodities under consideration can not be associated with all the identified contaminants; for some

commodities only several contaminants are relevant. The table below specifies which contaminants are relevant to particular foodstuffs:

The risk prioritization of residues in foods is an ongoing process. As new compounds are used and as monitoring information becomes available, the inclusion of specific residues should be reviewed periodically.

**Table 1. Priority foodstuffs and associated contaminants**

Product	Contaminant
Apples	Pesticide residues
	Patulin
	Heavy metals (lead, cadmium)
Apple Juice	Patulin
	Food additives
	Heavy metals (lead, cadmium)
Pomegranate	Pesticide residues
	Heavy metals (lead, cadmium)
Pomegranate juice	Food additives
	Heavy metals (lead)
Tomatoes	Pesticide residues
	Heavy metals (lead, cadmium)
Cucumbers	Pesticide residues
	Heavy metals (lead, cadmium)
Hazelnuts	Pesticide residues
	Aflatoxins
	Heavy metals

With the identified priority contaminants, in some cases there are differences between the normative residue limits in EU and Azerbaijani regulations. When the acceptable or tolerance limits of a residue are selected for the purposes of this NRCMP, a more stringent limit should be selected.

The identified contaminants are broad classes and sometimes they include hundreds of chemicals. Therefore, it is important to prioritize them based on risks. The risks may differ for each contaminant and include the following.

## 8.1 Pesticides

Risk-based Criteria for selection of the priority pesticides

- History of detection at EU border over the last 10 years in the foodstuffs under consideration from all countries exporting to EU, with a focus on the regions of Eastern Europe, Middle East and Central Asia
- History of detection in products from Azerbaijan
- Registration status in Azerbaijan
- Statistics on importation of pesticides into Azerbaijan
- Data from additional sources (e.g., results of monitoring of actual application by farmers in Azerbaijan)
- Findings of assessment of residues of DDT, hexachlorane and endosulfan (teadine 30% and 50%) in soils, conducted in Azerbaijan in 2005 – 2007

**Table 2. Priority pesticides<sup>2</sup>**

Active Substance	Status in EU	MRL in EU	MRL in Azerbaijan
<b>Apples, based on history of detection at EU border, all EU trading partners</b>			
Azinphos-methyl	Not included	0.05	-
Dicofol	Not included	0.02	-
Fenvalerate	Not included	Fenvalerate and Esfenvalerate (Sum of RR- & SS-isomers) 0.05 Fenvalerate and Esfenvalerate (Sum of RS & SR isomers) 0.02	0.01
Oxydemeton-methyl	Not included	0.01	-
Pyrimethanil	Included	5.0	-
Dimethoate	included	0.02	0
Omethoate	Not included	0.02	-
Thiabendazole	Included	5.0	-
Monocrotophos	Not included	No MRL	-
Carbendazim	included	0.2	-
Carbaryl	Not included	0.05	-
Chlorbufam	Not included	0.05	-
Diazinon	Not included	0.01	Not allowed for apples
Flusilazole	Included	0.02	-
<b>Apples, based on additional data on monitoring of application by farmers in</b>			

<sup>2</sup> This table was developed based only on the criteria of the history of detection of pesticide residues in similar foodstuffs at EU border, to a limited extent (apples) on the criteria of actual application by farmers in Azerbaijan and in once case (DDT) on history of EU notifications on products from Azerbaijan. Further data on prioritization of pesticides was not available. The State Phytosanitary Service is currently updating pesticide registration lists and MRLs, which should be finished by the middle of 2012. Meantime, this table can serve as a starting point for the NRCMP.

Active Substance	Status in EU	MRL in EU	MRL in Azerbaijan
<b>Azerbaijan</b>			
Cypermethrin	Included	1.0	0.05
Cyprodinil	Included	1.0	0.04
Difenoconazole	Included	0.5	0.1
Mancozeb	Not included	0.01	01, not allowed for apples
Chlorpyrifas	Included	0.05	
Dimethoate	included	0.02	0
<b>Cucumbers, based on history of detection at EU border, all EU trading partners</b>			
Aldicarb	Not included	0.02	-
Oxamyl	Included	0.02	-
Methamidophos	Not included	0.01	-
Thiophanate-methyl	Included	0.1	-
Methomyl	Included	MRL not established	-
Dimethoate	Included	0.02	0
Pymetrozine	Included	0.5	-
Diazinon	Not included	0.01	0.5
Malathion	Included	0.02	0.5
Chlorpyrifos	Included	0.05	Not allowed on cucumbers
Triazophos	Not included	0.01	-
Fosthiazate	Included	0.02	-
Formetanate	Included	0.05	-
Carbendazin	Included	0.1	-
Procymidone	Not included	0.02	-
<b>Tomatoes, based on history of detection at EU border, all EU trading partners</b>			
Cypermethrin	Included	0.5	0.2
Chlormequat	Included	0.05	-
Dicloran	Not included	0.3	-
Bromide (methyl)	Not included	0.01	-
Nuarimol	Not included	0.01	-
Pyridaben	Included	0.3	-
Chlorothalonil	Included	2.0	-
Ethephon	Included	1.0	-
Oxamyl	Included	0.02	-
Fenhexamid	Included	1.0	-
Procymidane	Not included	0.02	-
Tetradifon	Not included	0.02	-

Active Substance	Status in EU	MRL in EU	MRL in Azerbaijan
<b>Pomegranates, based on history of detection at EU border, all EU trading partners</b>			
Ethion	Not included	0.01	
Lambda-cyhalothrin	Included	0.02	Not allowed for pomegranates
Cyfluthrin	Included	0.02	
Fenpropathrin	Not included	0.01	Not allowed on pomegranates
Phenthoate	Not included	No MRL established	-
Methomyl	Included	No MRL established	-
Prochloraz	Not included	0.05	-
<b>Hazelnuts, based on history of detection at EU border, all EU trading partners</b>			
Dicloran	Not included	0.1	-
Magnesium phosphide	Included	0.05	-
Chlorpyrifos	Included	0.05	Not allowed on hazelnuts
<b>Hazelnuts, based on data in border notifications of products from Azerbaijan</b>			
DDT	Not included	0.08	Banned, 0.15

## 8.2 Food additives

Risk-based criteria for selection of the priority food additives:

- History of detection at EU border over the last 10 years in relevant foodstuffs (juices) from all countries exporting to EU, with a focus on the regions of Eastern Europe, Middle East and Central Asia, and fruit juices of colors common to Azerbaijan (yellow, red)
- Food additive approval status in Azerbaijan
- Data on monitoring of actual application by the industry
- History of detection in juices in Azerbaijan

**Table 3. Priority food additives<sup>3</sup>**

Food Additive	Status in EU, for	Limit in EU	Status in
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<sup>3</sup> This table was developed based only on the criteria of the history of detection of food additive residues in similar juices at EU border, and on approval status in Azerbaijan. Further data on prioritization of food additives, like history of detection by local food control bodies was not available. However, this table can serve as a starting point for the NRCMP.



	fruit juices		Azerbaijan
E-210 Benzoic acid	Authorized	1000 mg/kg	Authorized
E-200 Sorbic acid	Unauthorized	0	Authorized
E-127 Erythrosine (color)	Unauthorized	0	Unauthorized
E-160b Annato (color)	Unauthorized	0	Authorized
E-110 Sunset Yellow (color)		50 mg/kg	Authorized
E-124 Ponceau Red 4R, Cochineal Red A	Unauthorized	0	Authorized
E-122 Azorubine, Carmoisine	Unauthorized	0	Authorized

### 8.3 Mycotoxins

Risk-based criteria for selection of the priority mycotoxins:

- Scientific data and natural occurrence
- History of detection at EU borders, both for relevant product from Azerbaijan and other countries
- Human health effects

**Table 4. Priority mycotoxins**

Mycotoxin	Associated product	Limit in EU, mg/g	Limit in Azerbaijan
Aflatoxin	Hazelnuts	Subject to sorting B <sub>1</sub> - 0,008	0,005
		For direct consumption B <sub>1</sub> - 0,005	
Patulin	Apples and apple juice	For different apple products, from 0,025 to 0,05	0,05

### 8.4 Heavy metals

Risk-based criteria for selection of the priority heavy metals:

- Scientific data and natural occurrence
- Impact of agrotechnologies
- History of detection at EU borders, for relevant product from other countries

- Significant differences in limits established by Azerbaijani and EU standards
- Human health effects

**Table 5. Priority heavy metals<sup>4</sup>**

Product	Lead, mg/kg	
	Limit in EU	Limit in Azerbaijan
Tomatoes	0.1	0.5
Cucumbers	0.1	0.5
Fruits, berries, grapes	Fruits 0.1	0.4
	Berries and small fruit 0.2	0.4
Vegetable, fruit, and berry juices, nectars, drinks, concentrates	0.5	Vegetables 0.5
		Fruits and berries 0.4
		In tan can 1.0
Drinks		0.3

## **9. Laboratories for residues controls and the accreditation status**

There are a number of laboratories involved in official controls in Azerbaijan. All laboratories listed below are official control laboratories. They are subordinate to relevant official control agencies and generally operate according to the plans developed under each agency. The results of official control are reported by each laboratory to the relevant agency.

- Republic Toxicology Control Laboratory of the State Phytosanitary Service, Ministry of Agriculture
- Republic Laboratory on Plant Quarantine Expertise of the State Phytosanitary Service, Ministry of Agriculture
- Laboratory of the Republic Center for Hygiene and Epidemiology
- Central Food Laboratory of the Ministry of Economic Development
- Food Laboratory of AzStandard
- Laboratory of the State Customs Committee
- Laboratory of the Ministry of Environment

<sup>4</sup> This table was developed based on the criteria of significant differences between the limits in EU and Azerbaijan, and the history of detection of heavy metal residues in products from other countries at EU border. Further data on prioritization of heavy metals was not available, however this table can serve as a starting point for the NRCMP.

The laboratories are accredited within national accreditation system. The Food Laboratory of the Ministry of Economic Development is in the processes of international accreditation against ISO 17025. Currently laboratories do not participate in proficiency testing.

For the purposes of this NRCMP, the tests are distributed between the laboratories to avoid redundancy.

**Table 5. Distribution of tests between the official laboratories**

Laboratory	Product	Contaminants
Republic Toxicology Control Laboratory	Apples, cucumbers, tomatoes, hazelnuts, pomegranates	Pesticides
	Hazelnuts	Aflatoxins
	Apples, cucumbers, tomatoes, hazelnuts, pomegranates	Heavy metals
	Apples	Patulin
Laboratory of the Republic Center for Hygiene and Epidemiology	Tomatoes, cucumbers (canned)	Pesticides
	Tomatoes, cucumbers (canned); apple juice, pomegranate juice	Heavy metals
	Apples (in commercial storages), apple juice	Patulin
	Apple juice, pomegranate juice	Food additives
Central Food Laboratory of the Ministry of Economic Development	Apples, cucumbers, tomatoes, hazelnuts, pomegranates (market/retail)	Pesticides
	Apples, cucumbers, tomatoes, hazelnuts, pomegranates, apple juice, pomegranate juice (market/retail),	Heavy metals
	Hazelnuts	Aflatoxin
	Apple juice	Patulin
	Apple juice, pomegranate juice	Food additives
Food Laboratory of AzStandard	Apples, pomegranates (commercial storages)	Pesticides
	Apples, cucumbers, tomatoes, hazelnuts, pomegranates (commercial storages)	Heavy metals
	Apples (commercial storages), apple juice	Patulin
	Apple juice, pomegranate juice	Food additives
Laboratory of the State Customs Committee	Apples, pomegranates (import and export only)	Pesticides
	Apples, hazelnuts, pomegranates, apple juice, pomegranate juice (import and export only)	Heavy metals
	Hazelnuts (import and export only)	Hazelnuts
	Apples, apple juice (import and export only)	Patulin

	Apple juice, pomegranate juice (import and export only)	Food additives
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## 10. Sampling levels and frequencies

For the products intended for export to EU, 100% of batches should be sampled in Year 1.

For the products intended for local distribution, the number of samples should be based on throughput, sampling is spread throughout the year and sampling locations are proportionate to production.

To identify sampling levels, Codex Alimentarius approach was applied. *Statistical Table below* indicates the number of samples required to ensure detection of a violation that affects a given percentage of the sampled population. Statistically, for a Binomial distribution with sample size “n” and violation rate “v” (in decimal number), if v is the true violation rate in the population and n is the number of samples, the probability, p, of finding at least one violation among the n samples (assuming random sampling) is:

$$p = 1 - (1 - v)^n$$

Therefore, if the true violation rate is 1% (i.e. 0.01), the probabilities of detecting at least one violation with sampling levels of 230, 300 are 0.90 and 0.95, respectively.

**Statistical Table**

Percentage % Violative in the Sample (v)	Probability (p) of detecting at least one violation in (n) samples (n)			
	0.90	0.95	0.99	0.999
	Number of Samples required “n”			
10	22	29	44	66
5	45	59	90	135
1	230	300	459	688
0.5	460	598	919	1,379
0.1	2,302	2,995	4,603	6,905
0.05	4,605	5,990	9,209	13,813

Procedure to calculate the required number of samples:

Subtract one from both side of the equation

$$1 - p = (1 - v)^n$$

Apply Logarithmic function to both side of the equation

$$\log(1 - p) = \log(1 - v)^n$$

A logarithmic function property

$$\log(1 - p) = n \cdot \log(1 - v)$$

Sample size based on Violation rate ( $v$ ) and Probability of detecting ( $p$ ).

$$n = \frac{\log(1 - p)}{\log(1 - v)}$$

The Sampling Matrix can be found in Section 17.

## ***11. Description of personnel involved in official sampling***

Only personnel directly employed by participating official authorities and holding relevant positions (inspectors) can take samples for the purposes of this NRCMP. The authorized inspectors can be employed both by central and regional offices of the participating authorities.

The authorized inspectors must be trained in sampling rules and procedures, and rules for collection, packaging, transporting and storage of the samples.

Producers of fruit and vegetables, food businesses and their authorized representatives are not allowed to take samples for the purposes of this NRCMP.

## ***12. Rules to be followed for collecting, packing, identifying, transporting, and storage of the samples***

Collection of samples should be performed in a consistent and transparent manner and in strict adherence to sampling rules.

Where necessary, specific equipment for collection of samples must be used. For some substances, specific information on sampling must be available – including specifications for the type of packing, requirements for storage before transportation and time limits for transport. Such information can be provided by the laboratory responsible for requesting the samples.

For the purposes of this NRCMP, the following documents should be used as guides for collection, packing, indentifying, transporting and storage of official samples:

1. General Guidelines on Sampling. CAC/GL 50-2004
2. Codex Sampling Plans for Prepackaged Foods. AQL 6.5
3. Recommended Methods of Sampling for the Determination of Pesticide Residues for Compliance with MRLS. CAC/GL 33-1999

4. Recommended Methods of Analysis And Sampling. CODEX STAN 234-1999
5. Commission Regulation (EC) No 401/2006 (OJ L70, P12, 09/03/2006) of 23 February 2006 laying down the methods of sampling and analysis for the official control of the levels of mycotoxins in foodstuffs
6. Commission Directive 2003/78/EC (OJ L203, p40, 12/08/2003 ) of 11 August 2003 laying down the sampling methods and the methods of analysis for the official control of the levels of patulin in foodstuffs
7. Commission Regulation (EC) No 333/2007 of 28 March 2007 laying down the methods of sampling and analysis for the official control of the levels of lead, cadmium, mercury, inorganic tin, 3-MCPD and benzo(a)pyrene in foodstuffs
8. Commission Directive 2002/63/EC (OJ L187, p30, 16/07/2002) of 11 July 2002 establishing Community methods of sampling for the official control of pesticide residues in and on products of plant and animal origin and repealing Directive 79/700/EEC

Specific sampling protocols should be developed based on the above documents.

Inspectors and sampling officers should have a clear knowledge of the sampling strategies to be used. Depending on the actual organization, this information could be part of a sampling guideline; general knowledge about sampling strategies etc. could be subjects for training of sampling personnel.

Statistics on sampling should be reviewed by persons responsible at a central level in order to verify that samples adhere to the aims and prescriptions for the NRCMP. Results from such reviews could be presented and discussed between representatives of authorities participating in the NRCMP.

The specific origin of the samples must not be known to the analytical staff until the analytical report has been completed and signed, but provided that proper procedures for restriction of access to the detail sample information can be established, the full information on the sample could be available to the institution doing the actual analysis.

### ***13. Analytical methods in the NRCMP***

Only those analytical techniques, for which it can be demonstrated in a documented traceable manner that they are validated and have an acceptable false compliant rate shall be used for monitoring purposes. In the case of a suspected non-compliant result, this result shall be confirmed by a confirmatory method.

The following spectrum of methods and equipment can be used for the NRCMP:

	Pesticides*	Heavy metals	Aflatoxins	Patulin	Food additives
<b>Apples</b>	GC, GC-MS, ECD, TCD, HPLC	ICP, AA			
<b>Tomatoes</b>	GC, GC-MS, ECD, TCD, HPLC	ICP, AA			
<b>Cucumbers</b>	GC, GC-MS, ECD, TCD, HPLC	ICP, AA			
<b>Hazelnuts</b>	GC, GC-MS, ECD, TCD, HPLC	ICP, AA	Rapid test kits; HPLC fluorescent detector		
<b>Pomegranates</b>	GC, GC-MS, ECD, TCD, HPLC	ICP, AA			
<b>Apples juice</b>		ICP, AA		HPLC fluorescent detector	Rapid test kits; HPLC with diode array or UV-VIS
<b>Pomegranate juice</b>		ICP, AA			Rapid test kits; HPLC with diode array or UV-VIS
*There are four groups of pesticides: organo-phosphate, organo-chlorine, synthetic pyrethroid and carbamates. The tests for the first three groups most commonly make use of Gas Chromatography (GC) and the carbamates group makes use of High Performance Liquid Chromatography (HPLC)					

**Note:**

ICP - Inductively coupled plasma

GC-Gas chromatography

ECD - Electronic capture detector

TCD - Thermal conductivity detector

HPLC – High performance liquid chromatography

MS – Mass spectrometry

AA – Atomic absorption

## **14. Measures to be taken in the event of an infringement**

System should be in place on immediate information exchange about non-compliant cases between laboratories, central administration, regional / local inspectors.

Measures should vary depending on whether the finding indicates violation of national law (exceeding the established limits or application of unauthorized substance), or exceeding targeted limits of destination market.

In case when the finding indicates that an authorized substance was used (pesticide or food additive), the following actions should be taken:

- Identification of the affected batches
- Removal of the affected product from the market
- Carry out investigation

In case when the finding indicates that the actual residues in the product exceed limits established in the national law:

- Identification of the affected batches
- Removal of the affected product from the market, or
- Determine restrictions for the circulation of products from particular producer
- Determine the measures, which must be carried out for reducing of exceeded MRLs.

In case when the finding indicates that the actual residues in the product meet the limits established in the national law but exceed limits established in the standards of the destination market:

- Identification of the affected batches
- Notification of the producer or manufacture
- Refusal to issue certificates for export
- Determine the measures, which must be carried out for reducing of exceeded MRLs.

When the laboratory has reported a residue finding, the responsible authority shall take follow-up samples. The approach and amount of sampling should depend on the kind of residue found.

This follow-up sampling should be aimed to identifying the sources of contamination, possibly by taking additional samples of potential sources of contamination.

## **15. Financial Costs**

The implementation of the residue monitoring plan will of course have a financial cost, and not only for the analysis of the samples collected, but also the cost associated with:

- collection of samples;
- travel to sampling sites;
- time of inspectors, etc.;
- materials necessary for sample collection – packaging, labels, etc.;



- transportation of samples from site to laboratory;
- administration for managing the monitoring plans, including collation and analysis of
- results;
- facilitation of meetings with other relevant authorities to review monitoring plans and where necessary collaborate with development of EU submission documents;
- investigation of identified non-compliances.

It is therefore important that funding for these activities be included in the annual budgets submitted by the participating authorities to the government.

It is estimated that implementation of the NRCMP will require funding of approximately 500,000.00 Manat.

## ***16. Analysis of the NRCMP findings***

Official food control authorities participating in the NRCMP should report the results of monitoring activities to the National Codex Alimentarius Committee. In the framework of this reporting, a clear description of the intent of these activities should be stated as well as a clear description of the process/methodology used. The reports should include a discussion of the follow-up action if applicable. The aim of this report should be to increase transparency for regulators and regulated parties. The reports may also be useful for refined exposure and risk assessments of the chemicals monitored at the national level.

The National Codex Alimentarius Committee on an annual basis should analyze the cumulated results of monitoring activities implemented by participating official food control authorities, report the findings of analysis back to responsible agencies for targeted control, investigations and possible enforcement actions, and identify new priority risks and adjust the NRCMP for the next period.

## 17. Sampling Matrix

NATIONAL RESIDUE CONTROL AND MONITORING PLAN - SAMPLING MATRIX																										
PRODUCT	TYPE OF ACTIVITY	CONTAMINANTS AND RESPONSIBLE AGENCIES																								
		Pesticides					Heavy metals					Aflatoxins					Patulin					Food Additives				
		PhytTox	AzStan	MoED	Hyg	Customs	PhytTox	AzStan	MoED	Hyg	Customs	PhytTox	AzSt	MoED	Hyg	Customs	PhytTox	AzStan	MoED	Hyg	Customs	PhytTox	AzStan	MoED	Hyg	Customs
Apples	Control, n	100%				100%	100%				100%										100%					
	SampPoint	Export				import	Export				import										Export					
	Monitor, n	100	100	100			100	100	100								100	100		100						
	SampPoint	producer	warehouse	market			producer	warehouse	market								producer	warehouse		Warehouse						
Cucumbers	Control, n	100%					100%																			
	SampPoint	Export					export																			
	Monitor, n	100	100	100	100		100	100	100	100																
	SampPoint	producer	warehouse	market	canned		producer	warehouse	market	canned																
Tomatos	Control, n	100%					100%																			
	SampPoint	Export					Export																			
	Monitor, n	100		100	100		100	100	100	100																
	SampPoint	producer		market	canned		producer	warehouse	canned	canned																
Hazelnuts	Control, n	100%					100%				100%	100%		100%		100%										
	SampPoint	Export					Export				import	Export		Export		Export										
	Monitor, n	100		100			100	100	100			100		100												
	SampPoint	producer		market			producer	warehouse	market			producer		Producer												
Pomegranate	Control, n	100%				100%	100%				100%															
	SampPoint	Export				import	Export				import															
	Monitot, n	100	100	100			100	100	100																	
	SampPoint	producer	warehouse	market			producer	warehouse	market																	
Apple Juice	Control, n								100%		100%								100%		100%			100%		100%
	SampPoint								Export		Import								Export		Import			Export		Import
	Monitot, n							100	100	100								100	100	100			100	100	100	
	SampPoint							Plant	market	Plant								Plant	market	Plant			Plant	market	Plant	
Pomeg juice	Control, n								100%		100%													100%		100%
	SampPoint								Export		Import												Export		Import	
	Monitor, n							100	100	100													100	100	100	
	SampPoint							Plant	market	Plant													Plant	market	Plant	

## Annex 1. Sampling levels and frequencies – Methodology in Russian

Статистическая таблица указывает количество проб, необходимых для обеспечения обнаружения нарушений.

Статистически, при применении правил биномиального распределения с количеством проб “ $n$ ” и уровней несоответствий “ $v$ ” (в десятичных значениях), если  $v$  – фактический уровень несоответствий в общем объеме имеющейся продукции, а  $n$  – количество проб, то вероятность обнаружения хотя бы одного несоответствия среди количества образцов  $n$  равна

$$p = 1 - (1 - v)^n$$

Таким образом, если фактический уровень несоответствий  $v$  равен 1% (т.е. 0.01), то вероятность обнаружения как минимум одного несоответствия при количестве проб 230 и 300 равна, соответственно, 0.90 и 0.95

**Статистическая таблица**

Процентное отношение % несоответствий ( $v$ )	Вероятность ( $p$ ) обнаружения как минимум одного несоответствия при количестве образцов ( $n$ )			
	0.90	0.95	0.99	0.999
Необходимое количество (“ $n$ ”) проб				
10	22	29	44	66
5	45	59	90	135
1	230	300	459	688
0.5	460	598	919	1,379
0.1	2,302	2,995	4,603	6,905
0.05	4,605	5,990	9,209	13,813

$$1 - p = (1 - v)^n$$

$$\log(1 - p) = \log(1 - v)^n$$

$$\log(1 - p) = n \cdot \log(1 - v)$$

$$n = \frac{\log(1 - p)}{\log(1 - v)}$$